AMENDMENTS TO THE CLAIMS

1 (Currently Amended). A heat-treating system for a steel part comprising:

a heat-treating furnace for receiving said steel part;

an atmosphere source of an ammonia based atmosphere conveyed to said furnace for reaction with said steel part;

a heat source connected to said furnace for maintaining a predetermined temperature of said atmosphere;

a water source including a flow meter;

a vessel connected to said furnace and said water source; and

a processor for determining ammonia content of the atmosphere as a function of amount of ammonia dissociated within said vessel, said amount determined, at least in part, by measuring the flow of water into said vessel, said processor also comparing said measured flow of water into said vessel to a second measurement based, at least in part, upon a second water flow meter, reflecting ammonia content of the atmosphere.

2 (Currently Amended). The heat-treating system according to claim 1 wherein said processor continuously monitors said water flow into said vessel.

3 (Original). The heat-treating system according to claim 1 wherein the processor includes an alarm function that is activated when said amount is outside of predetermined limits.

4 (Original). The heat-treating system according to claim 3 wherein the alarm function includes a display device.

5 (Original). The heat-treating system according to claim 1 wherein the processor includes an output reflecting the ammonia content.

6 (Original). The heat-treating system according to claim 5 wherein said processor includes a display for said output.

7 (Original). The heat treating system according to claim 5 wherein said processor is coupled to said atmosphere source to control said atmosphere based, at least in part, upon the output.

8 – 9 (Canceled).

10 (Currently Amended). The heat-treating system of claim [8] 1 wherein said second measurement reflecting ammonia content of the atmosphere is based, at least in part, upon a pressure transducer.

11 – 13 (Canceled).

14 (Currently Amended). A method for monitoring a heat-treating system for a steel part, said method comprising:

providing a furnace to house said steel part;

introducing an ammonia based atmosphere into said furnace to react with said steel part;

providing a water source;

providing a flow meter connected to said water source;

providing a measurement vessel connected to said furnace and said water source;

filling said measurement vessel with said ammonia atmosphere and said water source;

measuring the flow rate of said water source; ~~and~~

determining dissociation of ammonia in said system, at least in part, from said flow rate measurement in said measurement vessel;

comparing said flow rate measurement to a predetermined ammonia atmosphere range; and

triggering a control signal if said flow rate measurement is outside of said predetermined atmosphere range.

15 (Original). The method of claim 14 further comprising the step of recording said flow rate measurement.

16 (Canceled).

17 (Original). The method of claim 14 further comprising the steps of:

providing a second flow meter;

comparing values of said second flow meter with said first flow meter; and

calibrating said first flow meter according to second flow meter values.

18 (Original). The method of claim 14 wherein said step of determining ammonia dissociation is performed before said ammonia atmosphere enters said furnace.

19 (Original). The method of claim 14 further comprising the step of providing a processor for determining ammonia dissociation.

20 (Original). The method of claim 19 further comprising the step of providing a display and an output for said processor.

21 (Original). The method of claim 20 further comprising the step of generating an alarm signal based, at least in part, on said output.

22 – 29 (Canceled).

30 (New). A method for monitoring a heat-treating system for a steel part, said method comprising:

providing a furnace to house said steel part;

introducing an ammonia based atmosphere into said furnace to react with said steel part;

providing a water source;

providing a flow meter connected to said water source;

providing a measurement vessel connected to said furnace and said water source;

filling said measurement vessel with said ammonia atmosphere and said water source;

measuring the flow rate of said water source;

determining dissociation of ammonia in said system, at least in part, from said flow rate measurement in said measurement vessel;

providing a second flow meter;

comparing values of said second flow meter with said first flow meter; and

calibrating said first flow meter according to second flow meter values.

31 (New). The method of claim 30 further comprising the step of recording said flow rate measurement.

32 (New). The method of claim 30 further comprising the steps of:

comparing said flow rate measurement to a predetermined ammonia atmosphere range; and

triggering a control signal if said flow rate measurement is outside of said predetermined atmosphere range.

33 (New). The method of claim 30 wherein said step of determining ammonia dissociation is performed before said ammonia atmosphere enters said furnace.

34 (New). The method of claim 30 further comprising the step of providing a processor for determining ammonia dissociation.

35 (New). The method of claim 34 further comprising the step of providing a display and an output for said processor.

36 (New). The method of claim 35 further comprising the step of generating an alarm signal based, at least in part, on said output.